Citizen Science and Libraries: Changing the World!

Elaina Vitale / ejv@pitt.edu

Pennsylvania Library Association
October 17, 2018

Poll Everywhere details:

Visit Pollev.com/elainavitale313

OR

Text ELAINAVITALE313 to 22333 once to join

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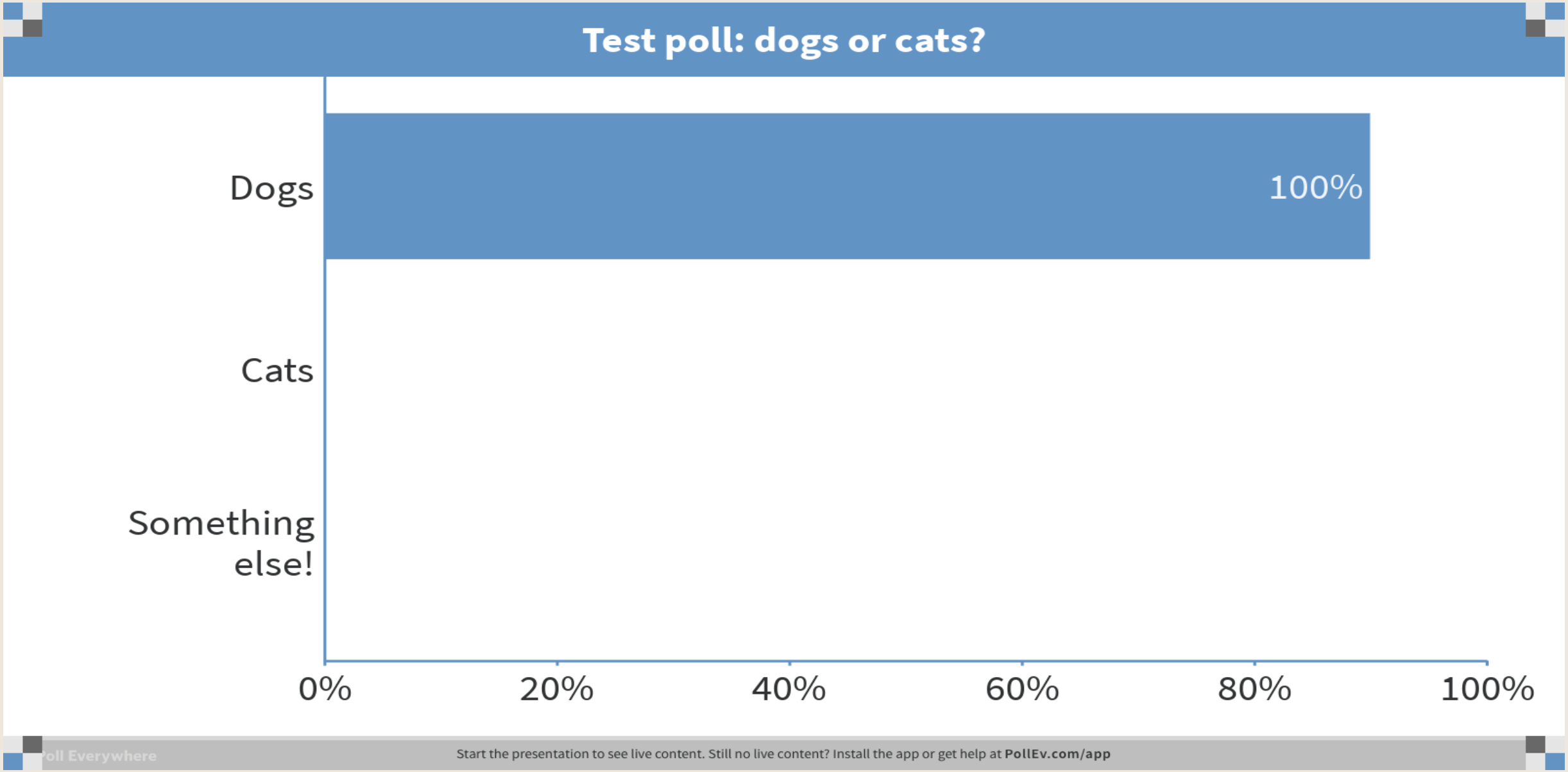
Test poll: dogs or cats?
Dogs
100%
Cats
Something else!
0%
20%
40%
60%
80%
100%
Poll Everywhere
Start the presentation to see live content. Still no live content? Install the app or get help at PollEv.com/app

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Our objectives:

- Describe different aspects of citizen science
- Share specific examples of health-related citizen science projects
- Discuss some of the challenges associated with citizen science
- Explain ways librarians & libraries can get involved with citizen science
- Identify citizen science resources and funding opportunities

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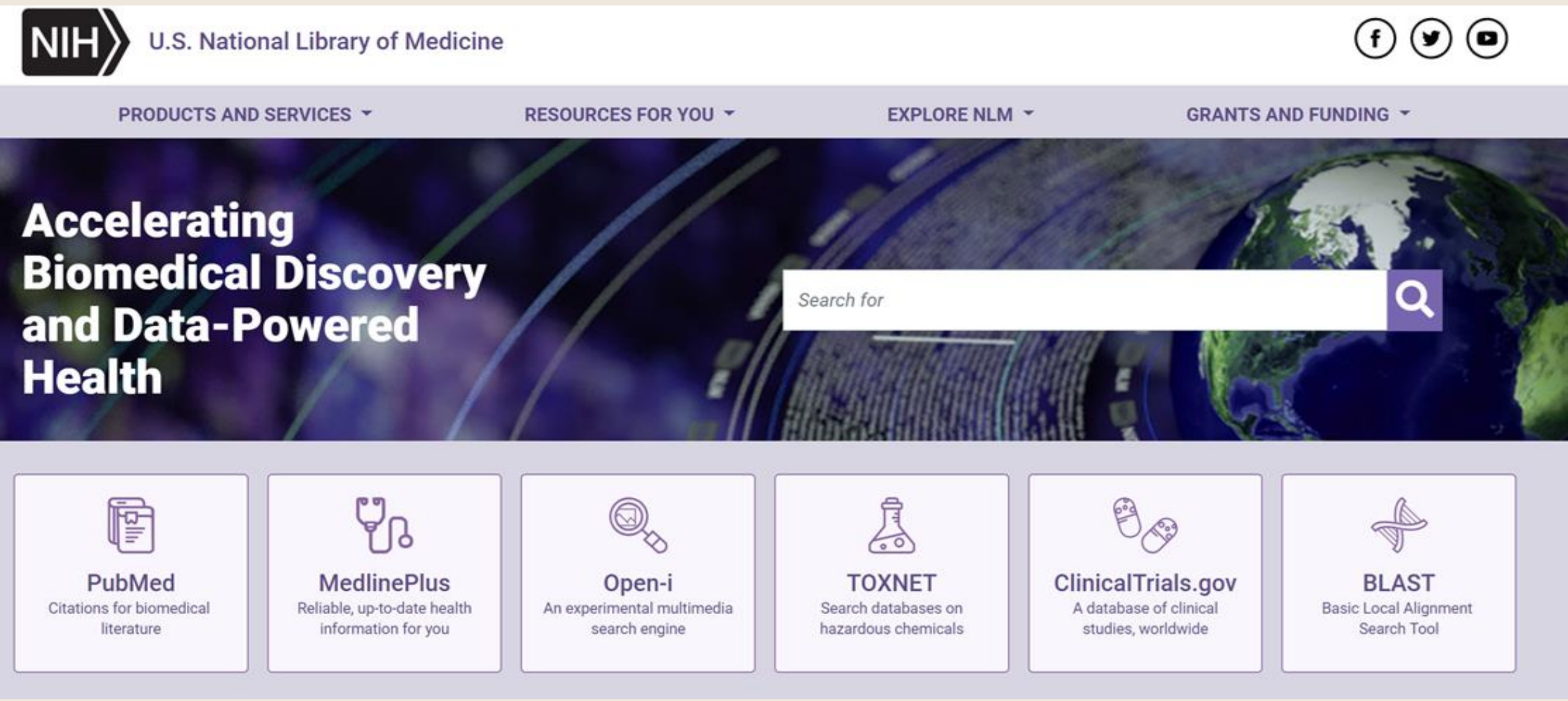

"The National Library of Medicine (NLM), on the campus of the National Institutes of Health in Bethesda, Maryland, has been a center of information innovation since its founding in 1836". [The National Library of Medicine](https://www.nlm.nih.gov/) (https://www.nlm.nih.gov/)

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Regional Medical Libraries

Explore the pinpoints below and learn more about the NNLM Regional Medical Libraries and their respective territories.

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National Network of Libraries of Medicine
(https://nnlm.gov/)

What does NNLM do?

- in person and online trainings
- exhibit at conferences and health fairs
- provide funding
- and much more!

Join today!
https://nnlm.gov/regions

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In your opinion, what is citizen science?

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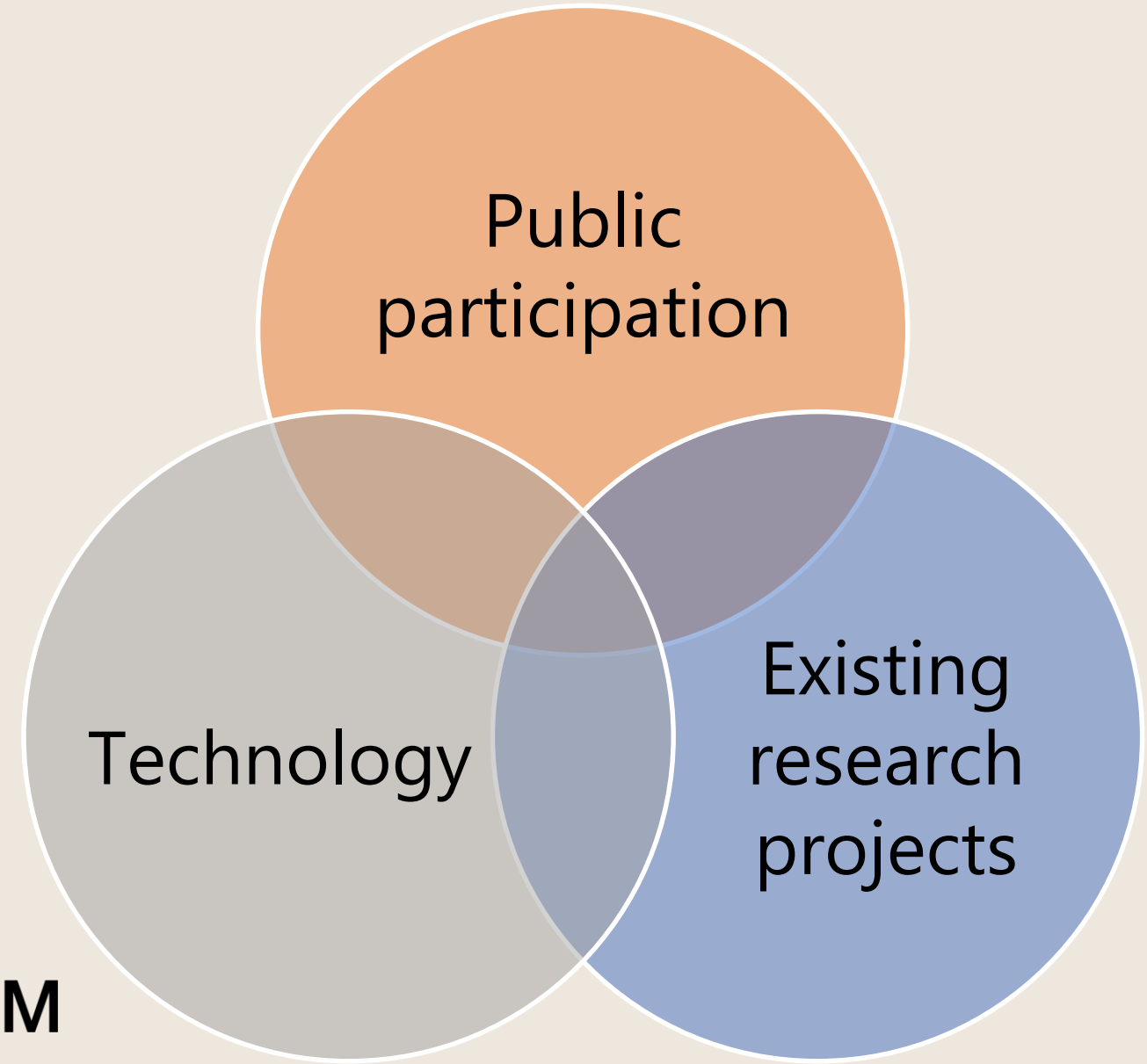
Citizen science is at the intersection of:



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In what disciplines can citizen science be found?

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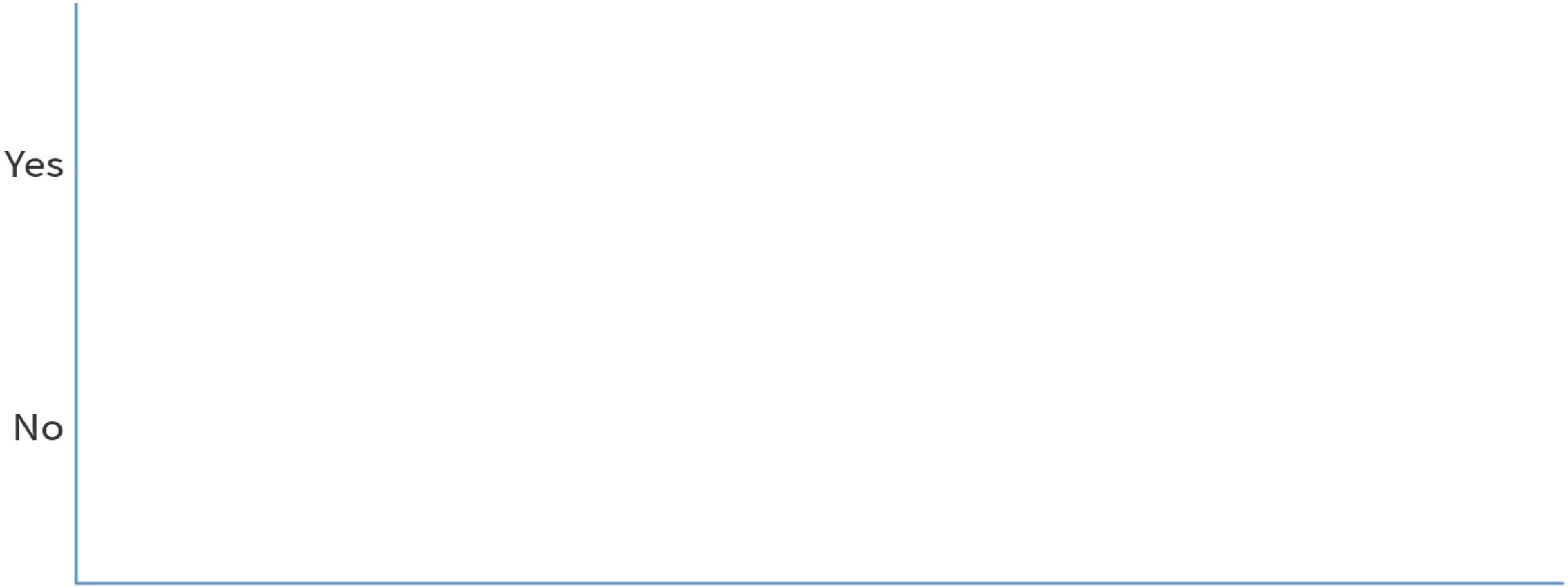
Have you participated in citizen science before?

When poll is active, respond at **PollEv.com/elainavitale313** Text **ELAINAVITALE313** to **22333** once to join



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Ten Principles of Citizen Science:

from the European Citizen Science Association

- New Knowledge
- Research Approach
- Genuine Science Outcome
- Open Project Data
- Everyone Benefits
- Acknowledgment
- Participate in multiple stages
- Programs evaluated
- Receive Feedback
- Carefully considered

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The 10 Principles of Citizen Science (https://ecsa.citizen-science.net/sites/default/files/ecsa_ten_principles_of_citizen_science.pdf)

Citizen Science in the News

Zoological Projects

[Guardian article](https://www.theguardian.com/science/blog/2014/apr/24/junior-citizen-scientists-investigate-the-plight-of-the-bumblebee)
(https://www.theguardian.com/science/blog/2014/apr/24/junior-citizen-scientists-investigate-the-plight-of-the-bumblebee)

Zoology Notes & Theories

Junior citizen scientists investigate the plight of the bumblebee

The Big Bumblebee Discovery project aims to engage more than 100,000 children in mass participation experiments

▲ People across the UK are being invited to take on the role of researcher, observing and recording bumblebees as they visit lavender flowers. Photograph: Richard Becker/Alamy

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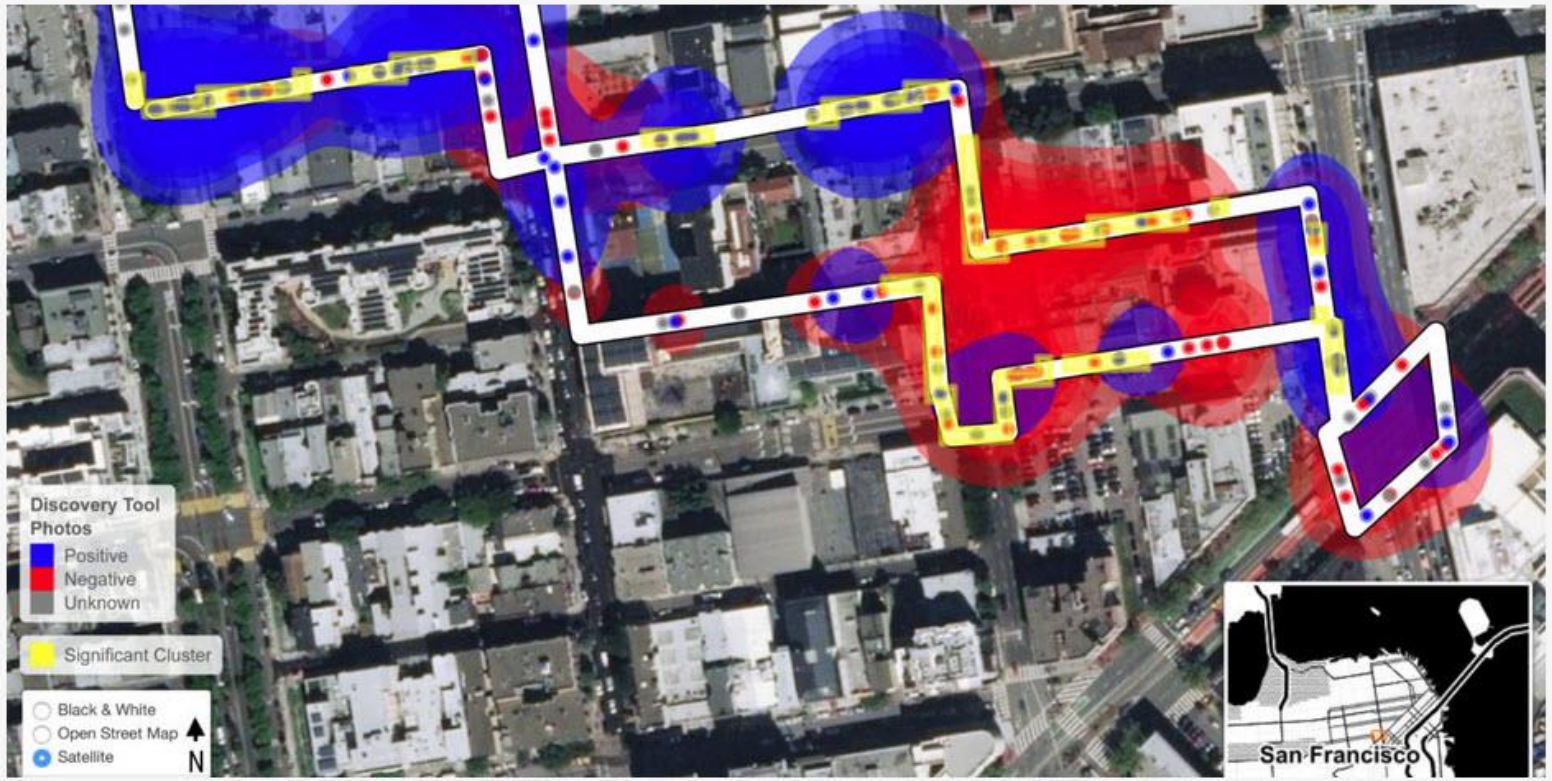
Urban Design Projects

[Stanford Medicine blog](https://scopeblog.stanford.edu/2018/06/26/citizen-science-research-investigates-neighborhoods-effects-on-well-being/)
(https://scopeblog.stanford.edu/2018/06/26/citizen-science-research-investigates-neighborhoods-effects-on-well-being/)



Citizen science research investigates neighborhoods' effects on well-being

Jennifer Huber

June 26, 2018

SCOPE
Published by Stanford Medicine

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Astronomy Projects

[BBC article](https://www.bbc.com/news/science-environment-42644531)
(https://www.bbc.com/news/science-environment-42644531)

Citizen science bags five-planet haul

By Paul Rincon
Science editor, BBC News website, Washington DC

12 January 2018

Share

Artwork: The findings could shed light on the process by which planets form and then migrate within their systems

A discovery by citizen scientists has led to the confirmation of a system of five planets orbiting a far-off star.

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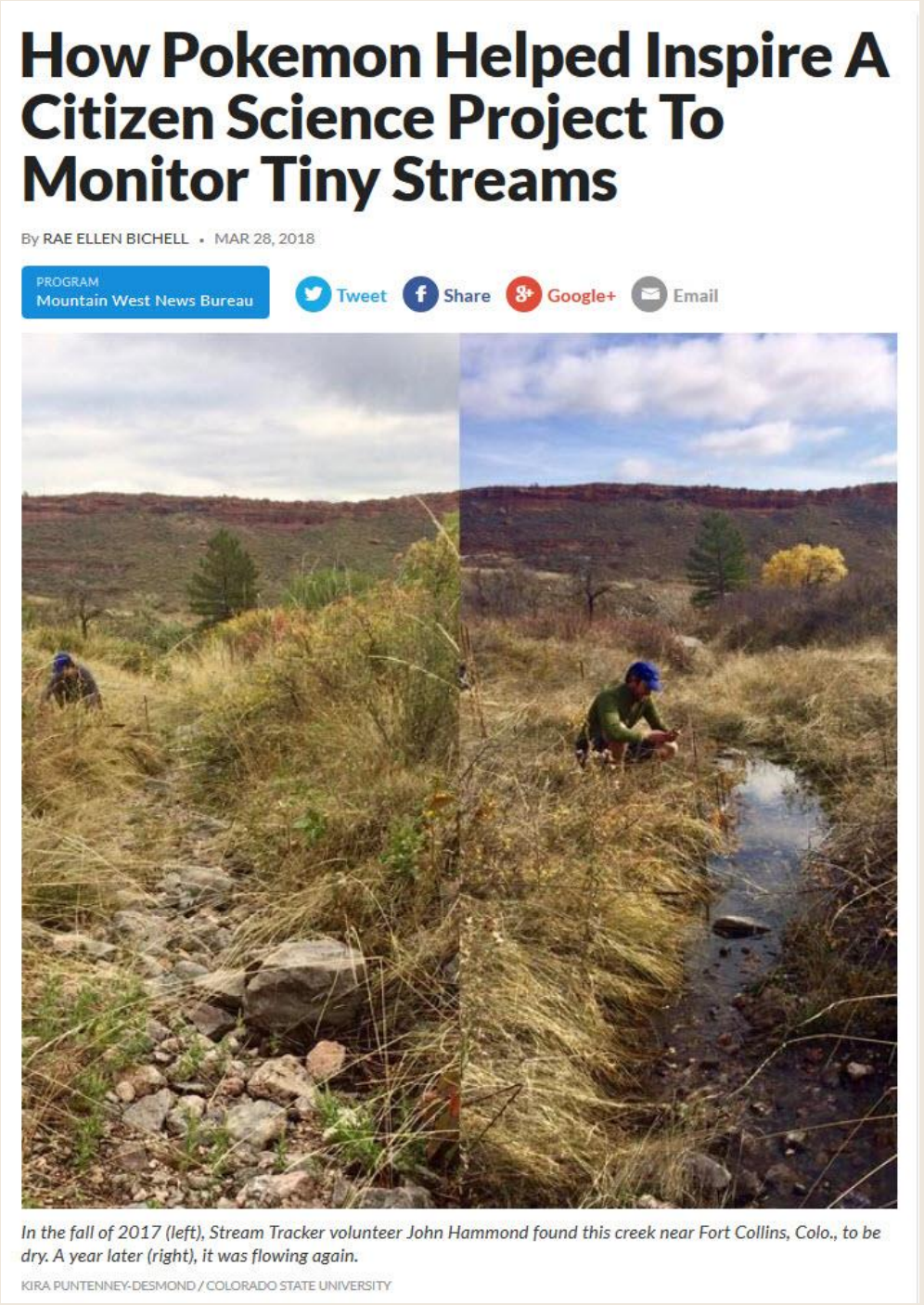
Environmental Projects

KUER article http://kuer.org/post/how-pokemon-helped-inspire-citizen-science-project-monitor-tiny-streams#stream/0



How Pokemon Helped Inspire A Citizen Science Project To Monitor Tiny Streams

By RAE ELLEN BICHELL • MAR 28, 2018

PROGRAM
Mountain West News Bureau

Tweet Share Google+ Email

In the fall of 2017 (left), Stream Tracker volunteer John Hammond found this creek near Fort Collins, Colo., to be dry. A year later (right), it was flowing again.

KIRA PUNTENNEY-DESMOND / COLORADO STATE UNIVERSITY

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Naturalist Projects

[Grand Canyon News article](https://www.grandcanyonnews.com/news/2018/jun/05/fourth-graders-join-kaibab-national-forests-citize/)
(https://www.grandcanyonnews.com/news/2018/jun/05/fourth-graders-join-kaibab-national-forests-citize/)

Fourth graders join Kaibab National Forest's Citizen Science Project

Students from Fredonia Elementary School attend a field trip on the North Kaibab Ranger District May 17 to help the forest's Citizen Science Project. The students were armed with Kindle Fire tablets to photograph and document a variety of plants and animals on the iNaturalist app. (Photo/Kaibab National Forest)

Originally Published: June 5, 2018 10:30 a.m.

By Williams-Grand Canyon News

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Health Projects

[San Antonio Express News](https://www.expressnews.com/news/local/article/NASA-is-building-models-to-predict-mosquito-borne-13083164.php)
(https://www.expressnews.com/news/local/article/NASA-is-building-models-to-predict-mosquito-borne-13083164.php)

NASA is building models to predict mosquito-borne illnesses — and you can help

By Alex Stuckey | July 17, 2018

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Finding Citizen Science Projects

SciStarter (https://scistarter.com/)

- Find projects to participate in/inspiration for program models
- Search by topic and/or location
- Read about project successes
- Contribute to Citizen Science Day (April 14)

CITIZEN SCIENCE Day

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★★★★★ (2) ?

Bookmark | Join Project

☐ I have already joined this project

Related Projects

PressureNet

What Do Birds Eat?

Drug discovery from your soil

Presented By:	University of Oklahoma
Goal:	Natural Product Drug Discovery from soil fungi
Task:	Send us soil from your backyard
Where:	Drug discovery from your soil
Description:	Creating a new medicine is a team effort involving scientist and medical professionals from a wide variety of fields. In 2010, researchers with the University of Oklahoma's Natural Products Discovery Group redefined the notion of what "team" meant when they launched their popular Citizen Science Soil Collection Program. Through this program, volunteers from across the United States have helped by donating soil samples from their own backyards, which OU investigators are using to obtain fungi that make special compounds known as natural products. Natural products are the source of many lifesaving drugs that are used today by doctors around the world. Read less
How to Join:	Joining the research process is amazingly simple: send us your dirt! Visit our website (http://npdgcitizenscience.org) and fill out the online form to request a free soil sample collection kit.

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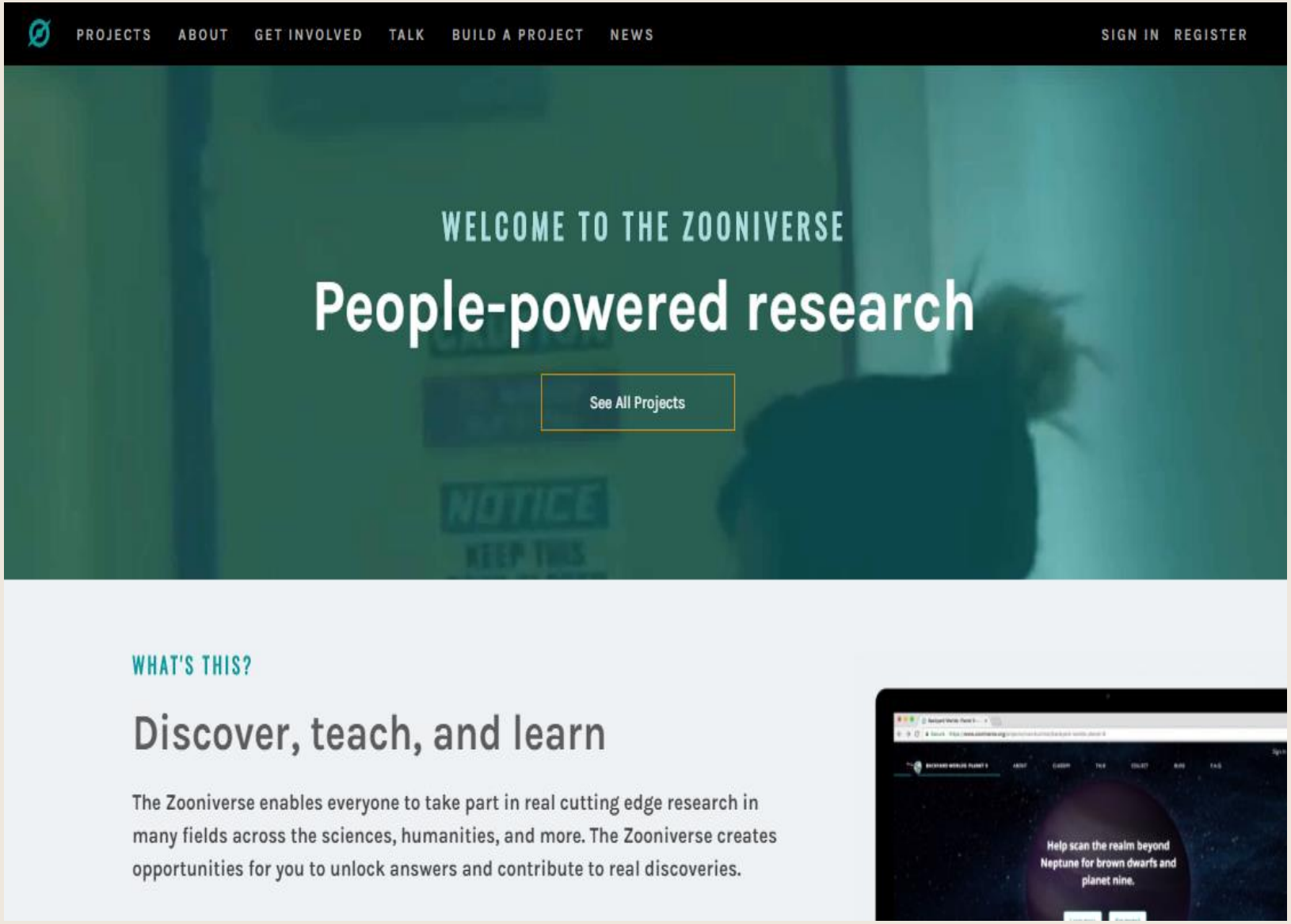
Drug discovery from your soil (https://scistarter.com/project/1164-Drug-discovery-from-your-soil)

How to Join:	Joining the research process is amazingly simple: send us your dirt! Visit our website (http://npdgcitizenscience.org) and fill out the online form to request a free soil sample collection kit. Bonus a free coloring book for our young (6 and under) participants.
Website:	http://npdgcitizenscience.org
Required Gear:	Free soil sample collection kit provided by the project organizer. Participants must own or have permission to collect a sample from the land.
Ideal Age Group:	Elementary school (6 – 10 years), Middle school (11 – 13 years), High school (14 – 17 years), College, Graduate students, Adults, Families
Spend the Time:	outdoors
Type of Activity:	At home
Media Mentions and Publications:	• Natural Products Discovery Group
Tags:	cancer, dirt, drug, drug development, drug discovery, girl scouts, infection, natural products, soil
Project Updated:	05/23/2018

Zooniverse (https://www.zooniverse.org/)

- Find projects to participate in/inspiration for project models
- Search by discipline
- View publications based on citizen science projects



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ZOONIVERSE

REAL SCIENCE ONLINE

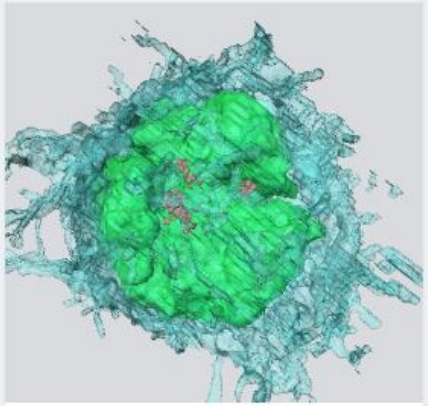
Projects

Active | Paused | Finished

ALL DISCIPLINES | ARTS | BIOLOGY | CLIMATE | HISTORY | LANGUAGE

Most Recently Launched

Showing 1-20 of 89 projects found.



ETCH A CELL

SCIENCE GOSSIP

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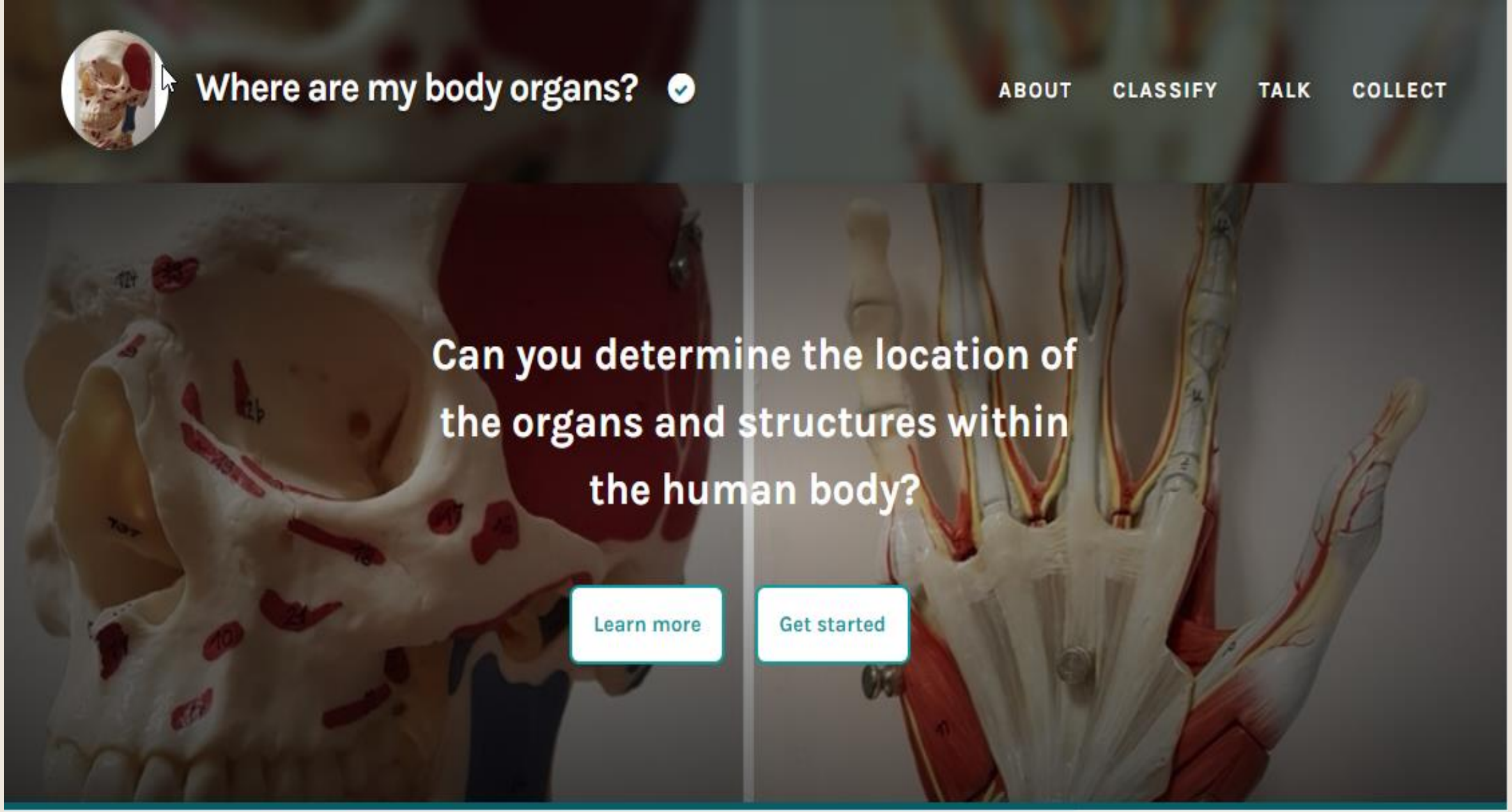

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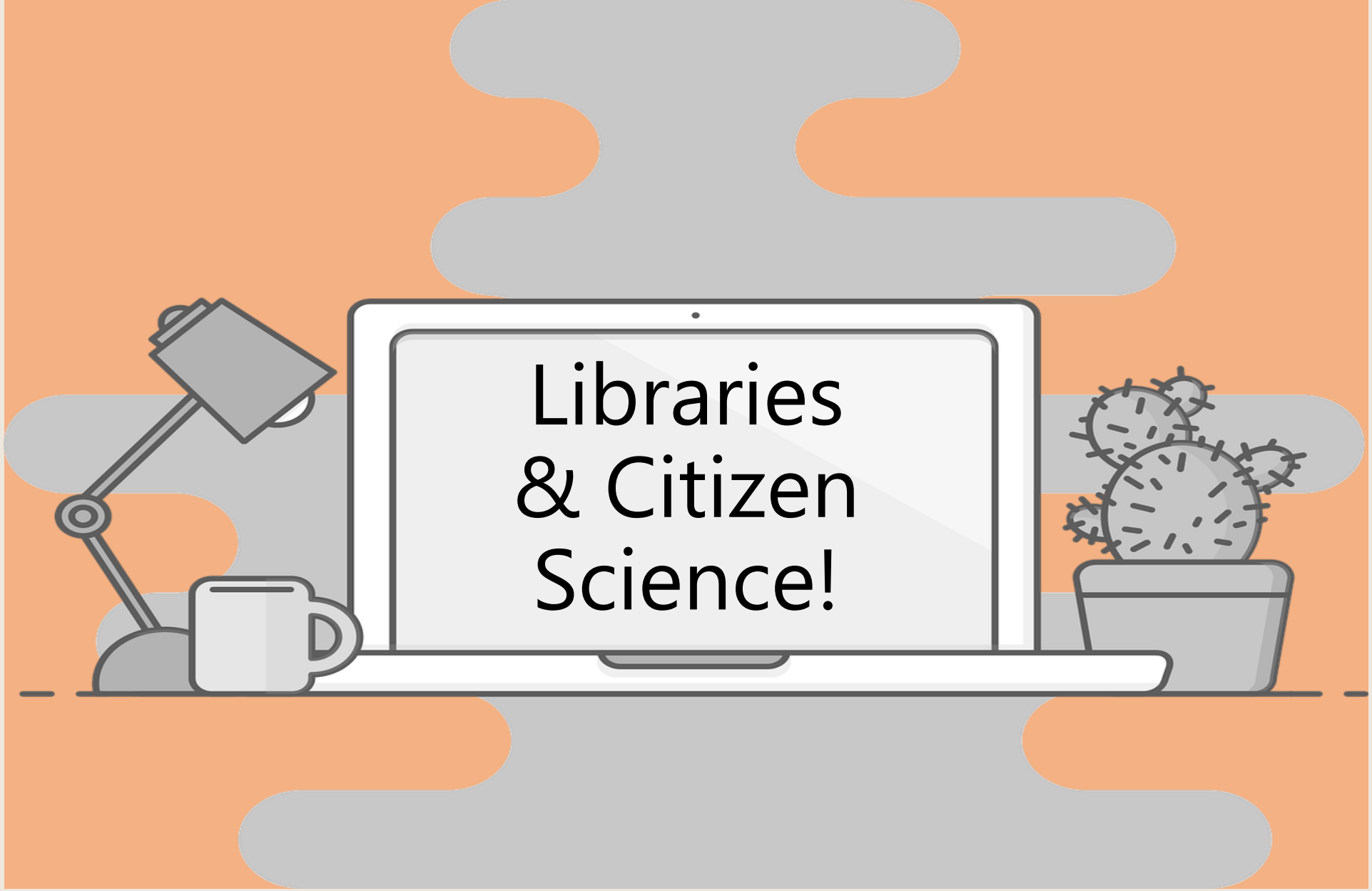
[Where are my body organs?](https://www.zooniverse.org/projects/h-spiers/where-are-my-body-organs)
(https://www.zooniverse.org/projects/h-spiers/where-are-my-body-organs)



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The Library as a Citizen Science Hub

Resources

PPL PORTLAND PUBLIC LIBRARY
Building a City of Readers

BE A CITIZEN SCIENTIST
- Related Online Resources »
- Recommended Websites »

Portland Public Library (Maine) Citizen Science Page
(https://www.portlandlibrary.com/highlight/citizen-scientist/)

Collections

Display by Aimee Stubs from
https://aimeestubbs85.wordpress.com/

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How else can libraries participate?

Clubs

CALIFORNIA ACADEMY OF SCIENCES

SCIENCE ACTION CLUB

Bugs in Your Schoolyard

We are participating in the Citizen Scientist program

"Bugs in Your Schoolyard"

This program is for students in grades 4-8.

See your site lead or more information

Citizen Science Day

http://www.citizenscience.org/events/citizen-science-day/

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More ways for libraries to get involved!

Collaborations

- “Nature Days”
- “Nature exploration bags”

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National Library of Medicine Resources for Citizen Science

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[Environmental Health Student Portal](https://kidsenvirohealth.nlm.nih.gov/) (https://kidsenvirohealth.nlm.nih.gov/)

For Teachers

Air Pollution | Chemicals | Climate Change | Water Pollution

Indoor Air Pollution

Why Study Indoor Air Pollution (State of Delaware) - Six activities to help students become more aware of the health risks associated with indoor air pollution.

There is Something in the Air (Baylor College of Medicine) - PDF unit lesson to model the flow of pollutants through outdoor and indoor air.

Helping to Find a Solution to Air Pollution! (Pima County, Department of Environmental Quality) - PDF activity for students to write themselves a letter about the problem of air pollution and how they would help with the causes.

Air Quality (Tox Town - National Library of Medicine) - Introduces students to air quality and the impact of air pollution on human health. Students test air quality in several locations in and around the school.

Air Pollution and Illness (CK-12) - Provides reading, practice, and critical thinking, activities, and study guides on how indoor and outdoor air pollution affects human health.

Outdoor Air Pollution

ECybermission - Accept the Challenge (U.S. Army) - Education outreach program promoting the creation of

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EHSP Teacher Guide (https://kidsenvirohealth.nlm.nih.gov/generic/6/for-teachers)

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Tox Town (https://toxtown.nlm.nih.gov/)

ToxTown Features:

- Key Concepts and Glossaries
- Community Action Tools
- Tools for Teachers
- Experiments and Projects

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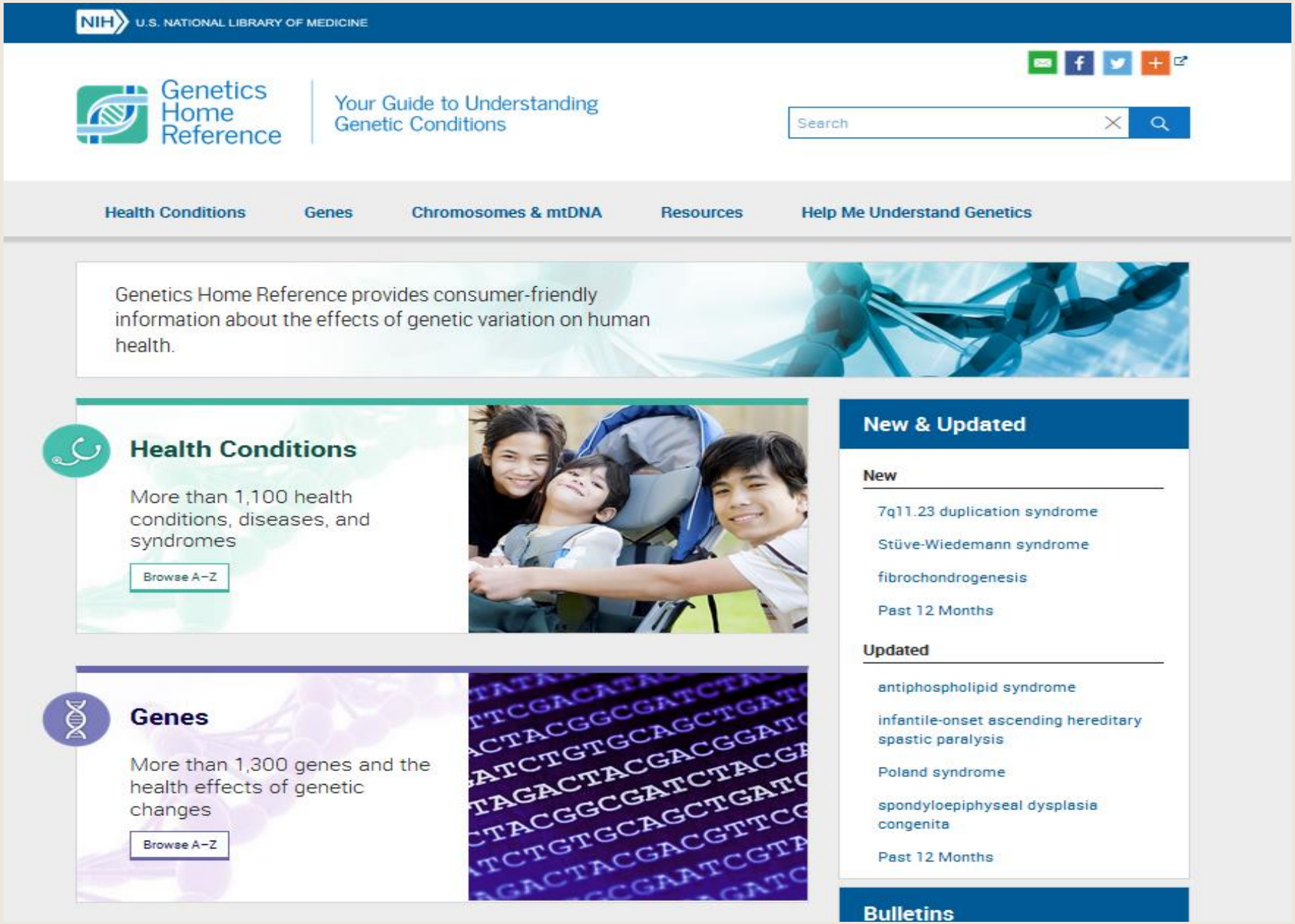

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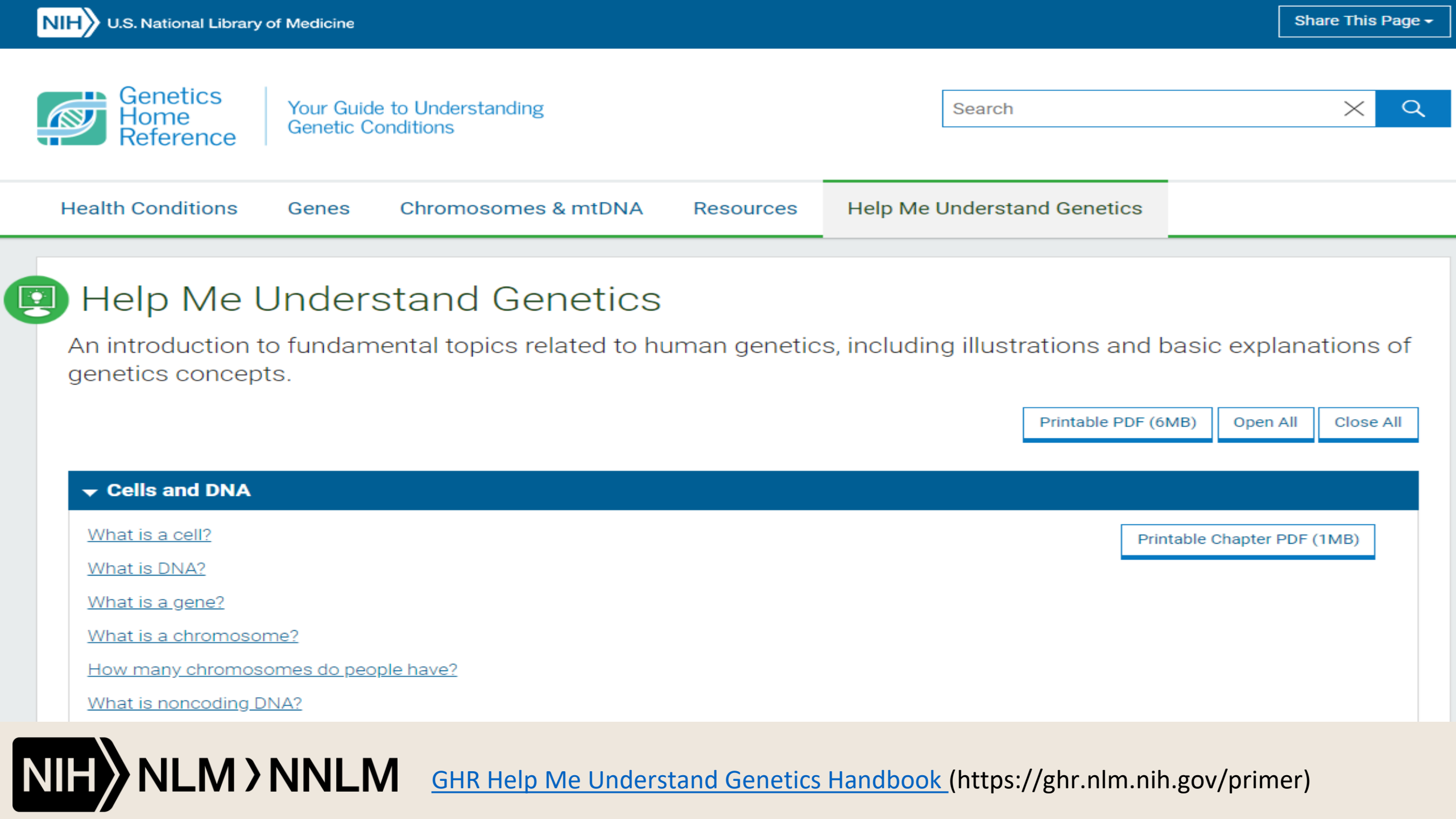
Genetics Home Reference (https://ghr.nlm.nih.gov/)


NIH U.S. National Library of Medicine
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Genetics Home Reference
Your Guide to Understanding Genetic Conditions
Search
Health Conditions
Genes
Chromosomes & mtDNA
Resources
Help Me Understand Genetics
Help Me Understand Genetics
An introduction to fundamental topics related to human genetics, including illustrations and basic explanations of genetics concepts.
Printable PDF (6MB)
Open All
Close All
Cells and DNA
Printable Chapter PDF (1MB)
What is a cell?
What is DNA?
What is a gene?
What is a chromosome?
How many chromosomes do people have?
What is noncoding DNA?
NIH NLM NNLM
GHR Help Me Understand Genetics Handbook (https://ghr.nlm.nih.gov/primer)

NIH U.S. National Library of Medicine | TOXNET TOXICOLOGY DATA NETWORK

Help | FAQs | TOXNET Fact Sheet | Training Manual & Schedule

TOXNET Home > ChemIDplus Lite

ChemIDplus

A TOXNET DATABASE

Lite • Browse • Advanced

SEARCH ChemIDplus | BROWSE ChemIDplus | ADVANCED SEARCH

(automatic) (automatic)

Search

Search for multiple terms by using this format: 50-00-0|50-01-1|50-02-2

About ChemIDplus

What is ChemIDplus?

Chemical database is a dictionary of over 400,000 chemicals (names, synonyms, and structures). ChemIDplus includes links to NLM and other databases and resources, including links to federal, state and international agencies. ChemIDplus Lite is designed for simple searching on name or registry. ChemIDplus Advanced helps users draw their own structures and perform similarity and substructure searches.

Updates: ChemIDplus records are updated daily.

Did you know

How do I lease/license the TOXNET databases?

The following TOXNET databases are available for lease: ChemIDplus, DIRLINE, CCRIS, GENE-TOX, HSDB, and TOXLINE.

For further information visit Leasing Data from the National Library of Medicine.

More FAQs

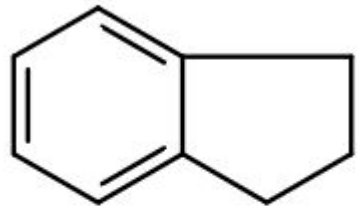
Support

Resources
Help
Fact Sheet
Sample Record
TOXNET FAQ

Contact Us
Email: tehip@teh.nlm.nih.gov
Telephone: (301) 496-1131
Fax: (301) 480-3537

Structure

Edit



Powered by ChemAxon Marvin

Use: Marvin for JavaScript

Import MOL

Structure Search Options

- Substructure Search
- Similarity Search 80 %
- Exact (parent only)
- Flex (parent, salts, mixture)
- Flexplus (parent, all variations)

Structure data is available for 318,533 records.

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ChemIDplus (https://chem.nlm.nih.gov/chemidplus/)

U.S. Department of Health & Human Services www.hhs.gov

Household Products Database

Health & Safety Information on Household Products

National Institutes of Health
National Library of Medicine
Specialized Information Services
NLM

Home | Products | Manufacturers | Ingredients | Health Effects

Quick Search

Go

Product, Manufacturer etc...

Advanced Search

Browse by Category

- Auto Products
- Inside the Home
- Pesticides
- Landscape/Yard
- Personal Care
- Home Maintenance
- Arts & Crafts
- Pet Care
- Home Office
- Commercial / Institutional

Browse A-Z

- Product Names
- Types of Products
- Manufacturers
- Ingredients

Support

What's under your kitchen sink, in your garage, in your bathroom, and on the shelves in your laundry room? Learn more about what's in these products, about potential health effects, and about safety and handling.

Auto Products

Brake Fluid, De-icer, Lubricant, Sealant, and more...

Inside the Home

Air Freshener, Bleach, Cleaners, Toilet Bowl Cleaner, and more...

Pesticides

Animal Repellant, Fungicide, Herbicide, Insecticide, and more...

Landscape/Yard

Fertilizer, Lawn Care, Swimming Pool Products, and more...

Personal Care

Antiperspirant, Hair Spray, Makeup, Shampoo, Soap and more...

Home Maintenance

Caulk, Grout, Insulation, Paint, Putty, Stain, and more...

Arts & Crafts

Adhesive, Glaze, Glue, Primer, Varnish, and more...

Pet Care

Flea & Tick Control, Litter, Stain/Odor Remover, and more...

Home Office

Ink, Toner, Correction Fluid, Electronics Cleaners, Pens and more...

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[Household Products Database](https://householdproducts.nlm.nih.gov/) (https://householdproducts.nlm.nih.gov/)

Warnings: Hazard Statements

Warning. Causes eye irritation.

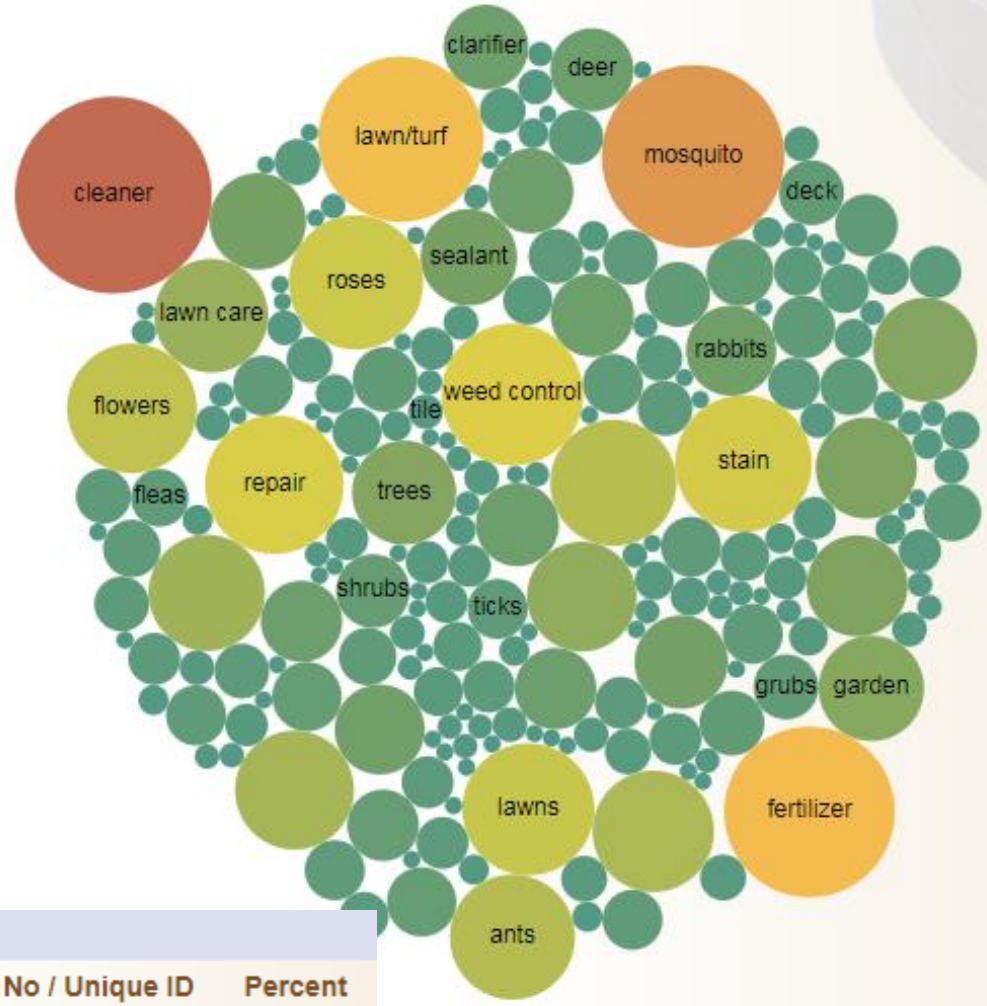
Precautionary Statements

Prevention

Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Wash hands thoroughly after handling.

Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.



Ingredients from (M)SDS/Label

Chemical	CAS No / Unique ID	Percent
DMA salt of MCPA	002039-46-5	0.257
DMA salt of Dicamba (3,6-dichloro-o-anisic acid)	002300-66-5	0.029
Benzisothiazolinone	002634-33-5	0-0.1
Quinclorac	084087-01-4	0.118
Sulfentrazone	122836-35-5	0.015

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Funding Opportunities

- NNLM Funding (https://nnlm.gov/funding)
- Foundation Center (http://libraries.foundationcenter.org/)
- Your state library! (https://www.statelibrary.pa.gov/Libraries/Subsidies-and-Grants/Pages/default.aspx)
- Federal agencies:
  - Environmental Protection Agency
  - National Science Foundation
  - US Forest Service

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Additional Programming Ideas

The Show Me Librarian (https://showmelibrarian.blogspot.com/p/all-things-steam.html)

- Repository for library STEAM programs and resources

STAR_Net (https://www.starnetlibraries.org/)

- Website with ideas, email newsletter

Potential Partnerships

Museums

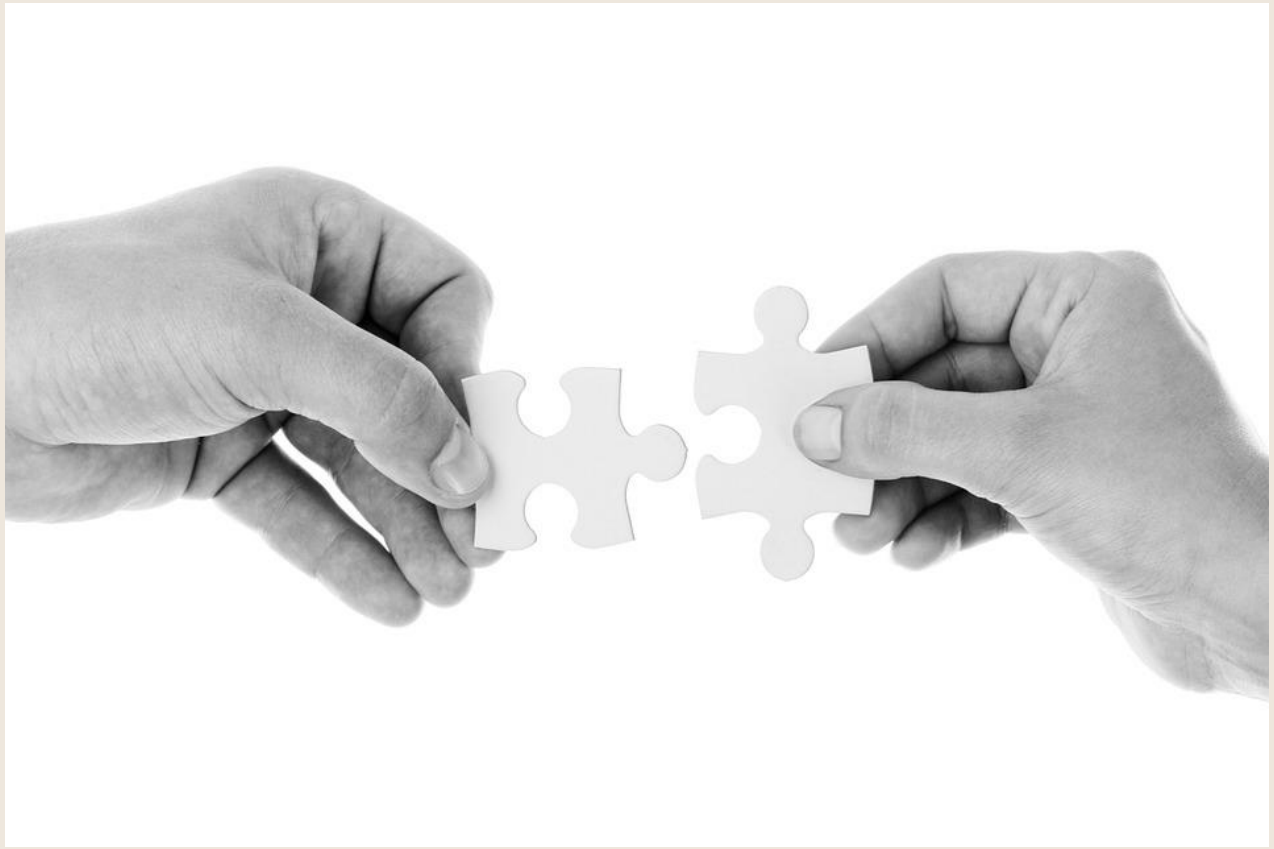
Science centers

Local parks

Academic institutions

After school programs

Camps



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Collection Ideas - titles to get started:

- Citizen Science: Public Participation in Environmental Research / Janis L. Dickinson and Rick Bonney
- The Incidental Steward / Akiko Busch
- Citizen Scientist: Searching for Heroes and Hope in an Age of Extinction / Mary Ellen Hannibal
- Citizen Science: How Ordinary People are Changing the Face of Discovery / Caren B. Cooper
- Citizen Science Guide for Families: Taking Part in Real Science / Greg Landgraf
- Exploring Environmental Science with Children and Teens / Eileen G. Harrington
- Citizen Science: Theory and Practice (journal)

Additional places to find information

- Citizen Science Association (http://www.citizenscience.org/)
- European Citizen Science Association (https://ecsa.citizen-science.net/)
- CitSci.org (citsci.org)
- Citizen Science discussion list (http://www.citizenscience.org/elist/)
- Citizen Science Conference (http://www.citizenscience.org/association/conferences/)

Thank you!

Elaina Vitale / ejv@pitt.edu

This project has been funded in whole or in part with Federal funds from the Department of Health and Human Services, National Institutes of Health, National Library of Medicine, under Cooperative Agreement Number UG4LM012342 with the University of Pittsburgh, Health Sciences Library System.

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